

## Middle East Lepidoptera 50 : Notes on some hitherto misunderstood forms near *Polymixis bischoffii* (HERRICH-SCHÄFFER, 1850) (Noctuidae)

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### Summary

*Crymodes bischoffii* ssp. *zagrobia* WILTSHIRE, 1941, from S.W. Iran, is considered a good species and becomes *Polymixis zagrobia* (WILTSHIRE) stat.n., comb.n. The genitalia of *Crymodes bischoffii* (H.-S.) sensu auct. from the Lebanon differ at the specific level from those of *Polymixis bischoffii* (H.-S.) sensu RONKAY & VARGA, 1986 ; the species is described under the earliest available name : *apora* STAUDINGER, 1897. *Crymodes bischoffii* sensu WILTSHIRE, 1941 (= *Apamea bischoffii* WILTSHIRE, 1957) of N. Iraq differs genitally from both of the two above taxa, but may remain provisionally under *P. bischoffii* (H.-S.) pending the availability of females for study.

### Résumé

*Crymodes bischoffii* ssp. *zagrobia* WILTSHIRE, 1941 est en effet une bonne espèce et devient *Polymixis zagrobia* (WILTSHIRE) stat.n., comb.n., habitant SW. Iran. *Crymodes bischoffii* (H.-S.) sensu auct., forme libanaise, diffère par ses genitalia de *Polymixis bischoffii* (H.-S.) sensu RONKAY & VARGA, 1986 ; le nom spécifique de *apora* STAUDINGER, 1897 est valable et devra être employé pour cette espèce. *Crymodes bischoffii* sensu WILTSHIRE, 1941 (= *Apamea bischoffii* sensu WILTSHIRE, 1957) du nord de l'Irak diffère par ses genitalia des deux taxa ci-dessus et peut rester provisoirement sous *P. bischoffii* (H.-S.) jusqu'à possibilité d'étudier une femelle de cette forme.

### Zusammenfassung

*Crymodes bischoffii* ssp. *zagrobia* WILTSHIRE, 1941, vom SW Iran, ist eine Art und wird als *Polymixis zagrobia* (WILTSHIRE) stat.n., comb.n. behandelt. *Crymodes bischoffii* (H.-S.) sensu auct. vom Libanon ist von *Polymixis bischoffii* (H.-S.) sensu RONKAY & VARGA, 1986 genitalmorphologisch verschieden ; die Name *apora* STAUDINGER, 1897 ist verfügbar und ist wieder zu benutzen. *Crymodes bischoffii* sensu WILTSHIRE, 1941 (= *Apamea bischoffii* sensu WILTSHIRE, 1957) vom N. Irak ist genitalmorphologisch verschieden von beiden oben genannten Taxa, kann aber vorläufig unter *P. bischoffii* (H.-S.) bleiben, bis weibliche Exemplare zur Verfügung stehen.

## Introduction

RONKAY & VARGA (1986 : 158) split the autumnal moth *Polymixis bischoffii* (HERRICH-SCHÄFFER, 1850) into two species based on differences in genitalia and habitus : *P. culoti* SCHAWERDA, 1920, inhabiting Greece, and the true *P. bischoffii* inhabiting western Turkey, with the lectotype taken by FRIVALDSKY at Smyrna (SVENDSEN, 1991). This left the status of reputed forms from further east unelucidated, the supposed range of the species having been previously said to extend from Greece to Jerusalem and even western Iran. The genitalia of eastern *P. bischoffii* forms have now been investigated. Two prove to belong to the *bischoffii-culoti* group, but differ at the specific level from both, and from each other, while the third and smaller (Iranian) form has proved to belong to the *P. juditha* STAUDINGER group of the genus.

### *Polymixis zagrobia* (WILTSHIRE) comb.n., stat.n. (Figs 1, 8)

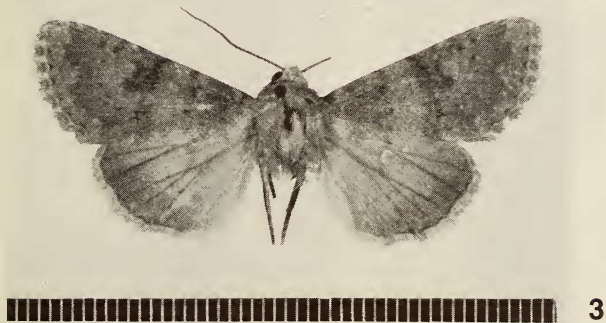
*Crymodes bischoffii* ssp. *zagrobia* WILTSHIRE, 1941 : 476.

HOLOTYPE : ♂ W. Iran, Khorramabad, 19.x.1938 (leg. E.P.W.) ; Prep. E. P. WILTSHIRE 2670. In BMNH, London.

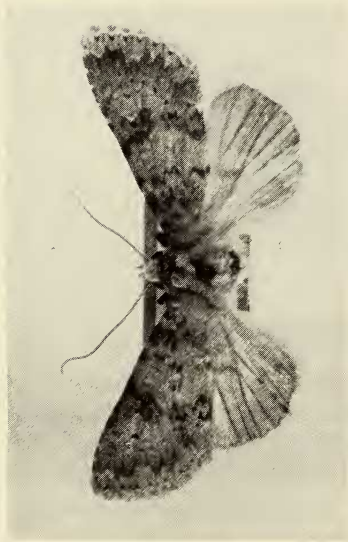
PARATYPES : 2 ♀♀ ; (i) same data as holotype (ii) S.W. Iran, Fars, Shapur, 20.x.1940 (leg. E.P.W.). In BMNH, London.

DIAGNOSIS : Wingspan 43 mm. Smaller in size than the Lebanese and Kurdish forms with which it was compared, also with more pointed forewing and costa slightly concave medially ; habitus differing slightly (Fig. 1).

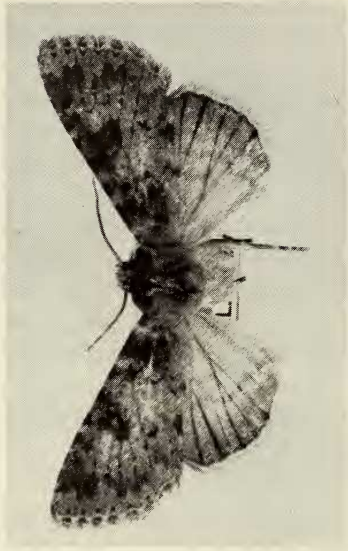
MALE GENITALIA (Fig. 8) : Uncus short, stout, with rounded tip ; penicular lobes less wide than in the following two species and others of the *bischoffii* group ; valve with peaked costal process and small corona ; with a prominent duck's-bill-shaped pollex projecting over the ventral distal border, not unlike that of *P. juditha* STAUDINGER ; a smaller, finger-like ampulla below the costal peak ; sacculus dorsally weak, but clavus rather square and projecting dorsally, strongly sclerotised. Aedeagus, about same length as valve ; vesica plain ; penis sclerotised distally, especially the ventral carina which is armed with a blunt vertical thorn. Compared with *P. juditha*, the uncus is thicker basally and lacks the black-tufted apical lobe of that species ; and both the ampulla and pollex of valve are larger than those of *P. juditha*. In habitus *P. juditha* is easily distinguished by the clarity of the pale, circular orbicular stigma and the uniformly infuscated median area of its forewing.



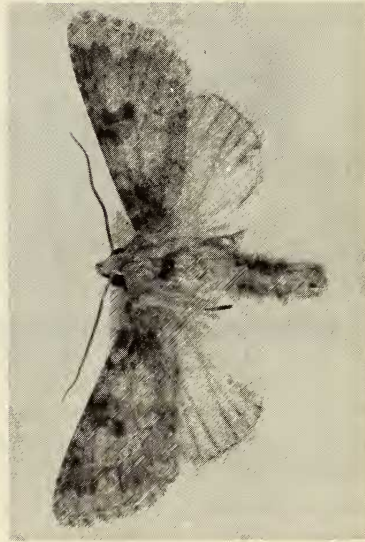
Figs 1-3. *Poymixis* spp. 1 - *P. zagrobia* (WILTSHIRE), stat.nov., comb.nov., ♀ allotype. S.W. Iran, Fars, Shapur, 20.xi.1940 ; 2 - *P. apora* (STGR), stat.rev., ♂. Lebanon, Shweir, 18.ix.1933 ; 3 - *P.?* *bischoffii* (H.-S.), ♂. N. Iraq, Kurdistan, Rowanduz, 7.x.1936. Scale : mm.



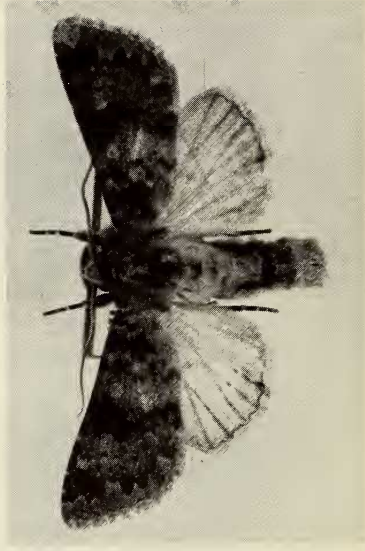
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Figs 4-7. *Polymixis* spp. 4 - *P. bischoffii* (H.-S.), ♀ lectotype. Turkey, Smyrna; 5 - *P. bischoffii* (H.-S.), ♂. Turkey, Antalya; 6 - *P. culoti culoti* (SCHAW.), ♂. Dalmatia; 7 - *P. culoti cretica* (RONKAY & VARGA), ♂ holotype. Crete. Same scale as Figs 1-3.

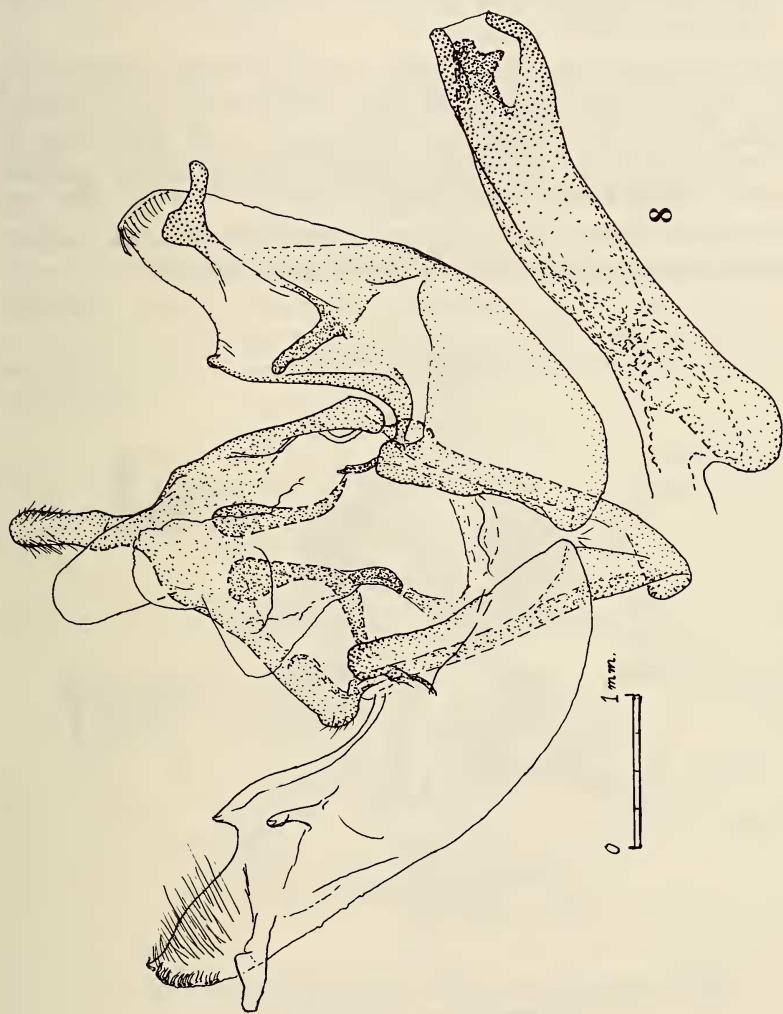


Fig. 8. *Polymixis zagrobia* (WULT.), male genitalia, prep. 2670. W. Iran, Khorramabad, 29. x. 1938.

*Polymixis apora* (STAUDINGER) stat.rev. (Figs 2, 9, 11)

*Polia apora* STAUDINGER, 1897 : 280

*Crymodes bischoffii* WILTSHIRE, 1935, larva pl. 3, fig. 15 (misidentification), also ELLISON & WILTSHIRE, 1939 : 38, citing BOURSIN as authority for synonymising *apora* STGR. This was repeated by DRAUDT in SEITZ, 1937 : 260.

MATERIAL STUDIED : Lebanon, Shweir, 1 ♂ (Prep. E.P.W. 2697R ; 1 ♀ (2697L) 18.ix & 31.ix.1933 ; 2 ♀♀ (Fig. 2) 19.ix.1933 ; (leg. E.P.W.) ; Hammana, 1 ♂, 22.ix.1990 (leg. A. S.TALHOUK). Also, kindly sent by Dr. W. MEY, Humboldt University Zoological Museum, Berlin, genitalia preparation labelled "apora Staudinger holotype ♂, Prep. 257/1956 Heinicke prep. ; Beirut, Zach leg., coll. Staudinger Museum, Berlin". These male genitalia agree well with E.P.W. prep. 2697 (1).

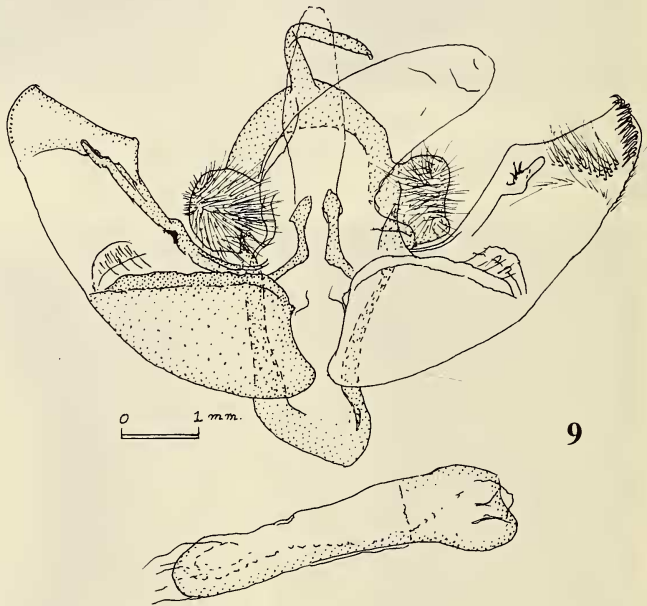


Fig. 9. *Polymixis apora* (STGR), male genitalia, prep. 2697R.  
Lebanon, Shweir, 18.ix.1933.

(1) It is not clear whether STAUDINGER in fact made an error of sex determination in calling the first type a female in his description, or whether subsequently received males were examined by Dr. HEINICKE in 1956 or M. BOURSIN or Dr. DRAUDT about 1937-40.

DIAGNOSIS : Wingspan 36-50 mm (the small ♀ of 36 mm is exceptional, the normal range being 46-50 mm). The species is characterised by the strong cross-markings on the upper and undersides of both wings, and by the darker slate-grey band between the basal and antemedian bands of the forewing upperside only. For other details of upperside habitus, see Fig. 2. The undersides of both wings are more uniformly pale yellow grey, with only the discal spots and postmedian lines well defined. The forewing pale stigmata are less clear than in most *Polymixis* species, but this also applies to the other two species treated here. In *P. apora* forewing upperside a characteristic dark blotch adjoins the reniform stigma proximally. The hindwing upperside is widely infuscated, the postmedian line most clearly indicated near the anal angle.

MALE GENITALIA (Fig. 9) : Uncus normal, fairly fine with pointed tip ; tegumen with wide penicular lobes ; valves with costal peak symmetrical, moderate ; ampulla finger-like and with a small basal setose wart ; corona with about twelve strong spines ; sacculus sclerotised dorsally, but clavus smooth and rounded ; aedeagus shorter than valve length, dilate distally.

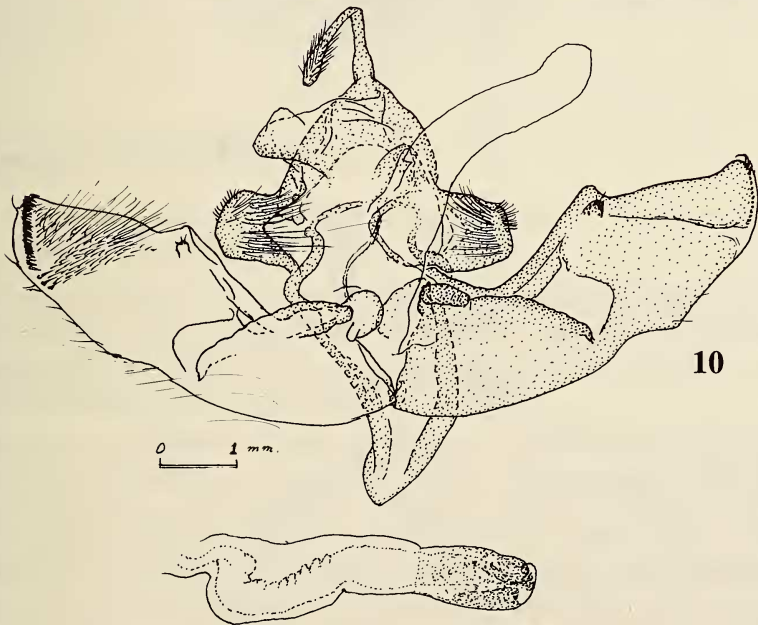


Fig. 10. *Polymixis ? bischoffii* (H.-S.), male genitalia, prep. 2669.  
N. Iraq, Rowanduz, 7.x.1936.

FEMALE GENITALIA (Fig. 11): Posterior apophyses finer and longer than in *P. bischoffii* lectotype (RONKAY & VARGA, 1986 : fig. 53) ; distal edge of sternite A7 less incised than that of *P. culoti* (Fig. 13), with crenellations wider and more developed than in *P. bischoffii* (Fig. 12), ductus bursae with a longer sclerotised sector.

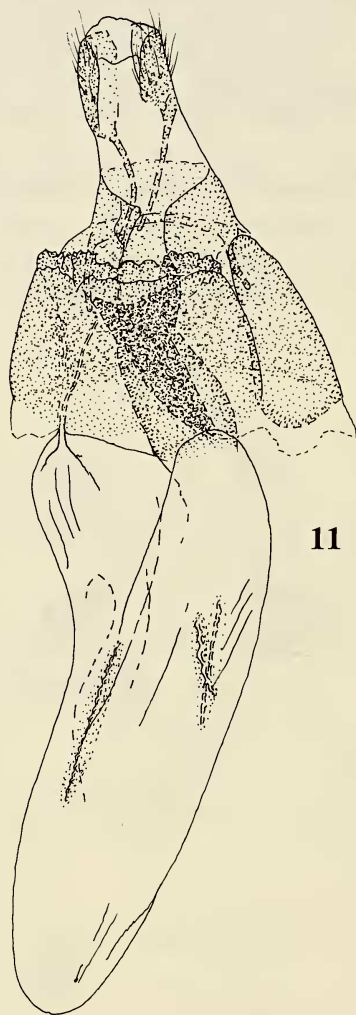


Fig. 11. *Polymixis apora* (STGR), female genitalia, prep. 2697L.  
Lebanon, Shweir, 21.ix.1933.





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Figs 12, 13. Female, 7th sternite. 12 - *Polymixis bischoffii* (H.-S.), lectotype, prep. 1516. Turkey, del. RONKAY ; 13 - *Polymixis culoti cretica* RONKAY, paratype, prep. 1669. Greece : Crete.

*Polymixis ?bischoffii* (H.-S.) (Figs 3, 10)

*Crymodes bischoffii* sensu WILTSHIRE, 1941 : 476

*Apamea bischoffii* sensu WILTSHIRE, 1957 : 76

MATERIAL STUDIED : ♂, Iraq, Kurdistan, Rowanduz Gorge, 7.x.1936 (leg. E.P.W.). Prep. E.P.W. 2669. In BMNH, London ; ♂ (abdomen missing), Syrie, Akbes, 1896 : presumably from the OBERTHÜR collection and leg. l'Abbé David, south of Marash.

DIAGNOSIS : Wingspan 54 mm, the largest of the three forms described here, the cross-lines on both sides of both wings weaker delineated and the forewing antemedian area lighter shaded ; stigmata obscure and reniform stigma obscure, as in *P. apora*, by the median shade reaching from costa to cell, which is about as dark as the antemedian area, but somewhat lighter than the proximal shading of the irregular submarginal line. For other details, see Fig. 3. Hindwing upperside paler than in *P. apora*, with narrower marginal band, the nervures however being more clearly infuscated on upperside.

MALE GENITALIA (Fig. 10) : Larger than those of *P. apora* ; uncus fine with rather hirsute lobar apex ; tegumen with wide penicular lobes ; valve matching that shewn in Fig. 50 of RONKAY & VARGA (1986), with costal peak moderate, but less symmetrical than that of *P. apora*, ampulla reduced, corona-spines shorter, but more numerous, ventral distal border more undulating ; sacculus dorsally sclerotised, but with clavus bipartite, wrinkled, more complicated ; aedeagus shorter than valve-length, with smoothly sclerotised distal lips and plain granular vesica, not distally dilated.

When a female of this more eastern race near *bischoffii* can be studied, the distal edge of the sternite A7 can be compared with Figs 7 & 8, and the ductus bursae with Fig. 53 of RONKAY & VARGA (1986). This may illuminate the affinities of *bischoffii* and *apora* further.

This Kurdish form appears under *Apamea* in WILTSHIRE (1957 : 76), while on p. 72 of the same book two other species were placed in the genus *Antitype*. All three were transferred by BOURSIN (1960 : 145) to *Polymixis*.

#### Acknowledgements

I am greatly indebted to Mr. M. R. HONEY, Natural History Museum, London, Dr. L. RONKAY, Hungarian Natural History Museum, Budapest, particularly for the photographs here reproduced (Figs 4-7), and Dr. W. MEY, Zoologisches Museum für Naturkunde, Berlin. I also thank the journal's referees who made some helpful observations.

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